Improving the Diagnosis and Treatment of Sepsis at St Helens and Knowsley

Evidence suggests that implementing an effective and sustainable program to address severe sepsis requires a dedicated team. St Helens and Knowsley Teaching Hospitals (StHK) established a team of sepsis nurse specialists to deliver a 24 hour service to identify diagnose and treat patients with sepsis. The team focus on clinical care provision in ED, learning from case reviews and educating staff across the trust.

The introduction of a specialist team has supported the work of the trust to increase the proportions of patients being screened for sepsis, the timely treatment of patients and reduced hospital mortality and the readmission rate for people with sepsis.

Background

St Helens and Knowsley Teaching Hospitals NHS Trust provide a full range of acute and intermediate healthcare services across sites at St Helens, Whiston and Newton hospitals, including inpatient, outpatient, and intermediate care, maternity and emergency services.

The trust identified the need to ensure it had a co-ordinated and consistent response to diagnose and treat people with sepsis early. In 2016 the trust made the decision to establish a dedicated sepsis team of sepsis nurse specialists and is led by an Emergency Department Consultant.

Aims

- To reduce trust sepsis mortality and morbidity rates
- To reduce the average length of stay for patients with sepsis
- To promote sepsis awareness and educate staff and patients to better identify sepsis
- To improve the safety and reliability of care provided to patients with sepsis
- To promote a culture of continuous quality improvement in sepsis care for patients

Actions:

Action One: Establish a Sepsis Team

In 2016 the trust established a sepsis team to deliver a 24 hour service to:

- clinically review patients with suspected sepsis identified through screening
- assist in the completion of the sepsis six management, including antibiotic administration
- review patients with red flag sepsis in ED

- follow up admitted patients to provide support and education.

The team now consists of 6.8 WTE specialist nurses and is led by an ED consultant.

Action Two: Centralise and standardise processes

The sepsis team have developed a systematic approach to identify and treat patients diagnosed with sepsis including:

- Established a process to receive email alerts from pathology regarding raised lactate/white cell count and follow them up continuously throughout the day.
- Education, training and support is provided to all relevant trust staff to ensure that screening is completed for all patients in the ED.
- Established a protocol that all patients with red flag sepsis are routinely followed up by the team after they have been admitted; the team have developed Patient Information Leaflets to ensure patients have access to quality information on their condition and understand how to receive more support.
- Relevant staff are expected to complete a sepsis study workbook
- Each ward has an education file to ensure access to relevant materials and record staff training.

Action Three: Establish mechanisms for improvement

The team worked to establish ways to capture learning so that the trust could identify opportunities to improve the diagnosis and treatment of people with sepsis. The key mechanism to do this was to undertake reviews of all sepsis patients to identify whether appropriate management plans were in place.

- Adopting an improvement approach, the team used CQUIN data, Root Cause Analysis/Serious Incident Requiring Investigation (SIRI) and DATIX to analyse, understand and prioritise issues with the sepsis pathways. Using this approach the team established: Safety net patients with raised serum lactate alerts to exclude sepsis diagnosis
- Assist with patient reviews, supporting ED waiting time and escalation for senior review
- Assist with completion of Visual Infusion Phlebitis (VIP) scores

Action Four: spread and sustain improvement

The trust has developed a robust training package which consists of tiers of training to meet the needs of all staff groups. The team are able to support a more bespoke approach to education and staff have been offered a variety of opportunities to engage including; sepsis study days, bespoke training to wards, e-learning training and FY1 training.

The team identified focus areas for education and awareness; each member of the sepsis team links directly with relevant clinical teams across the trust to attend team meetings and patient safety meetings to disseminate any information. The team liaise directly with ward

managers/link nurses to keep staff up to date with changes to practice or NICE guidelines and provide bespoke support to teams. The team have also supported "Sepsis Month", where specific areas in the trust will focus on sepsis education and improvement for a month with intensive, bespoke support from the sepsis team.

Action Five: Cross-organisational working

Analysis of data and the review of sepsis cases indicated that opportunities for early diagnosis could be missed prior to the patient arrival at the trust. The team therefore decided to run sepsis awareness training held for community staff through drop in sessions at St. Helens Hospital.

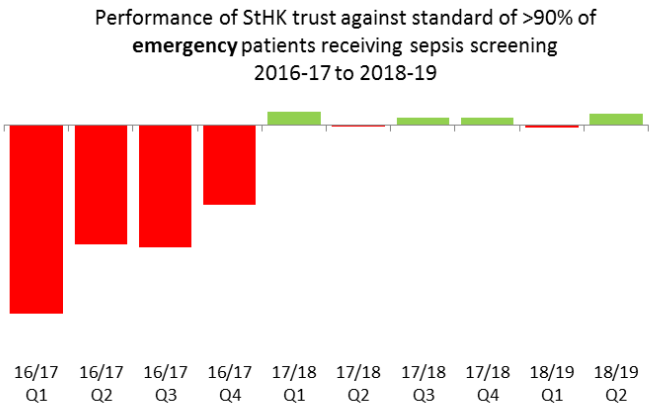
The team also engaged with GP surgeries regarding community sepsis pathways. This engagement identified the need for pre risk assessment with the aim to appropriately manage patients in the community and reduce hospital admissions.

The team were the organisational link to the North West Ambulance Service (NWAS) work to incorporate sepsis screening tool for pre alerts to ED (see the NWAS sepsis case study).

Results:

Sepsis screening:

In 2016-17 the trust set out a target to increase the proportion of emergency patients screened for sepsis to >90%.

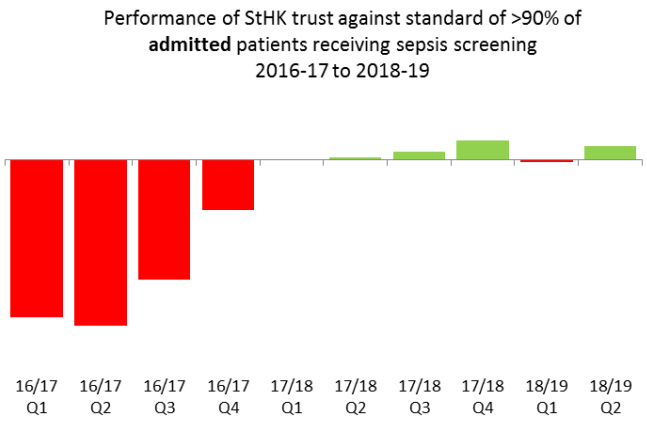


There was significant improvement in sepsis screening performance throughout 2016-17 and 2017-18.

Since March 2018 the trust has consistently screened 9 out of 10 patients in the emergency department.

Performance also improved for the proportion of all admitted patients who were screened for sepsis.

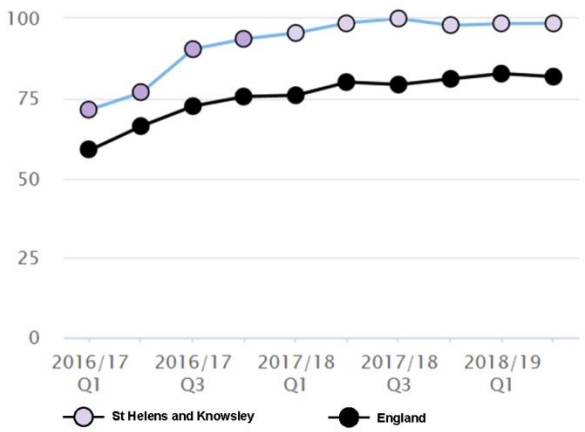
The most recent data show the trust is currently above the 90% target at 94.5%.



Quarterly proportion of patients admitted to inpatient departments who received antibiotics within 1 hour of recognition of deterioration

St Helens and Knowsley Hospital Services NHS Trust

Proportion - %



Administration of antibiotics:

All the evidence suggests that the early administration of antibiotic therapy supports improved clinical outcomes. In September 2018, 98.5% of patients reviewed by the sepsis team, were treated for suspected sepsis and received antibiotics within 1 hour of diagnosis.

Deaths from sepsis and re-admissions:

The sepsis team have been established for some time and have put in place a range of improvements that are specifically designed to make the diagnosis and care of patients with sepsis better. Two of the outcomes the trust was aiming for were to reduce in-hospital deaths and to reduce the likelihood of patients getting readmitted.

There was an overall reduction in mortality in 2017/18 for patients diagnosed with sepsis (-2.3%).

There was also a reduction in the number of emergency re-admissions relating to sepsis over this time period (-1.8%).

Education:

The trust have developed a robust education package to ensure all staff are aware of the signs of deterioation and appropriate treatment protocols. The local sepsis education workbook has a pass mark of 85%. Ongoing edcuation and support is delivered through study days, bespoke team support and ward education files.

Learning

- Improving outcomes for sepsis patients requires standardisation of best practice.
- Investing in a specialist team supports sustained improvement in outcomes and a shift in organisational culture and practices.
- To successfully improve hospitals need to take a systematic approach to reviewing their sepsis cases and have clear mechanisms for implementing improvements.
- By reviewing individual patient experiences organisations can work together to improve sepsis pathways across the system.

Further Information:

This case study has been produced by the Advancing Quality Alliance on behalf of Health Education England.

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